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On the Occurrence of *Neomenia* (*Solenopus*) in the British Seas. By Rev. A. M. Norman. (From the *Annals and Magazine of Natural History* for August, 1879.) 8vo, pp. 2.

On the Willemoesia Group of Crustacea. By Rev. A. M. Norman. (From the *Annals and Magazine of Natural History* for Nov., 1878.) 8vo, pp. 4.

Remarks on the Recent Eryontidæ. By Rev. A. M. Norman. (From the *Annals and Magazine of Natural History* for September, 1879.) 8vo, pp. 10.

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## GENERAL NOTES.

### BOTANY.

FERTILIZATION OF FLOWERS BY HUMMING BIRDS.<sup>1</sup>—For several years some persons of this place have been watching the birds about flowers. They visit flowers for at least two objects, for insects and for nectar, and perhaps for pollen in some cases. Pollen grains have been found on the bill and feathers of the head of humming birds. These birds have been seen to frequent flowers of pelargoniums, fuchsias, trumpet-creepers, phloxes, verbenas, catmint, milkweed, tropæolums, honeysuckles, lilacs, morning-glories, cherry, wild balsams. I have no doubt they visit a great variety of other flowers which secrete honey in abundance. Mr. Osband visited trumpet-creepers, in flower, in bright days, and always saw birds. On one plant he saw eight birds at one time.

The pollen of fuchsias is sticky or in strings. Humming birds are the main visitors to the flowers. The calyx tube seems too long and narrow for most insects. Mr. Hollingsworth is very sure these birds visit the plant for nectar. Sometimes they pierce through the base of the calyx tube and take out the nectar. The student last named covered some flowers and found the stigmas were dusted with pollen without the aid of bees or birds. The ovaries also swelled as though forming seeds.

Mr. Wm. Snyder observed the fertilization of *Impatiens fulva*. The anthers form a covering over the pistil. He tied bags over young flower buds, also over flowers which had opened but before the stamens had disappeared. In both cases no good seeds were produced. Some he tied up and artificially crossed. The latter, without exception, matured fruit. In other cases he cut off all the petals of the flowers. He took down the signs. None of these set fruit. In other cases the nectar gland only was removed, with no fruit setting.

Sometimes he saw a large number of black bees at work, seemingly trying to get what exercise and nectar they could. They ran in and out many times, and hardly ever touched an anther or pistil. He could not see that the insects were of any use in fertilizing the flowers. Small wild bees behaved no better as far as carrying pollen was concerned. A common honey bee availed nothing in this direction. One humble bee hit pollen in

<sup>1</sup> Notes taken from papers of his young students by Prof. W. J. Beal.

his plunges to get at the nectar, but left the plant after trying a single flower. In frequent visits he often saw humming birds about the flowers going to all that were open at the time. Every time the birds thrust their beaks into the flowers, if the stamens had not yet been removed, the head, a little above the beak, would hit these and become dusted with pollen. Where the anthers had been removed the birds head left pollen on the stigmas. He saw, in one cluster, all the flowers visited twice in fifteen minutes. He is confident that *Impatiens fulva* is cross-fertilized mainly, if not wholly by humming birds.

CONNECTION OF THE RAINFALL WITH FORESTS.—According to a paper in *Polybiblion*, the following are the laws of meteorology as affected by forests:—1. It rains more abundantly, under identical circumstances, over forests than over non-wooded ground, and most abundantly over forests with trees in a green condition. 2. The degree of saturation of the air by moisture is greater above forests than over non-wooded ground, and much greater over masses of *Pinus sylvestris* than over masses of leaved species. 3. The leafage and branches of leaved trees intercept one-third, and those of resinous trees the half of the rainwater, which afterwards returns to the atmosphere by evaporation. On the other hand, these same leaves and branches restrain the evaporation of the water which reaches the ground, and that evaporation is nearly four times less under a mass of leaved forest than in the open, and two and one-third times only under a mass of pines. 4. The laws of the change of temperature out of and under wood are similar so those which result from the observations of M. Mathieu. The general conclusion seems to be that forests regulate the function of water, and exercise on the temperature, as on the atmosphere, an effect of “ponderation” and equilibrium.—*English Mechanic*.

THE NEW MEXICAN LOCUST TREE, ETC.—In the article on Colorado plants in the November number, on page 681, in the note on *Salix flavescens*, the word “hybrid” should read “form.” It is apparent that no “hybrid” can occur unless both parents are found in the same vicinity, which in this instance is not the case. *Saxifraga chrysantha* from Pike’s Peak is apparently the same as *S. serpyllifolia* of Porter and Coulter’s Catalogue. *Artemisia arctica*, *Cnicus edulis* and *Troximon glaucum* are referred to, the last two under other names. *Robinia Neomexicana* is described therein also. E. L. Green, who first collected this species in Colorado, furnishes me with some interesting facts regarding it, which I take the liberty to quote from his letter. “The clump of trees to which you refer was found by me in 1873. It remains to-day the only known habitat of the species north of New Mexico, and strange to say, those trees are twice as large as any I ever saw in New Mexico; right on the banks of the river, and all around that clump of locusts grows *Bigelovia greenii*, which

no other botanist but myself has ever collected, although Drs. Hooker and Gray were over the same ground in 1877, and the plant is common along several of Dr. Parry's routes in New Mexico. The shrub at a distance, yes, even at the distance of a man's eyes from the ground at his feet, looks so much like *Gutierrezia euthamiae* (which grows with it) that it must have been confounded with that plant by the numerous botanists who have crossed the vast tract of country which it inhabits."—*Isaac C. Martindale*.

INSECTS CAUGHT BY THE PHYSIANTHUS.—I am reminded, on reading the account of the manner in which insects are caught in the anther-wings of *Physianthus albens*, published in the last number of the AMERICAN NATURALIST, that I exhibited to the Boston Society of Natural History, Sept. 1, 1852, a specimen of that plant, and read a description of the manner in which insects became imprisoned in its anthers. The following passage is published in the report of my remarks: "The insects catch themselves, and so often does this occur that a gentleman in New York has obtained butterflies, bees and a great variety of other insects, enough to fill a large case, from the flowers of a plant growing in his garden."—*Chas. F. Sprague*.

We would also add that Prof. C. V. Riley, as he tells us, several years ago recorded in the Proceedings of the American Association for the Advancement of Science, the fact that he had found moths entrapped by the same plant.—*Editors*.

BOTANICAL NOTES.—The *Bulletin* of the Torrey Botanical Club, for November (received December 28th) contains farther notes on ballast plants near New York City, by Mr. A. Brown; and Prof. Eaton contributes the 7th of his articles on new and little-known ferns of the United States. The *Journal of Botany*, hitherto conducted by Mr. Henry Trimen will be edited by Mr. Brittain, during the absence of the former in Ceylon, as Director of the Botanical Gardens. This journal records the death of the following botanists: J. F. Von Brandt, a joint author with the late Dr. Ratzeburg, of the Medical Botany and Zoölogy; Carlo Bagnis, aged 24, and Professor of Botany in the new University of Rome; C. J. M. Von Klinggraff, author of a Flora of Prussia, and a memoir on the plant geography of Northern and Arctic Europe.—*Grevillea* for December, notices Californian Sphæriæ, and prints an article on the propagation of *Sphæria fimbriata*, by C. B. Plowright.—The new part of Bentham and Hooker's *Genera of Plants*, will be issued in January, and will complete the Dicotyledonæ. The last part only remains to be published.—Sir. J. D. Hooker has called attention to the discovery of a variety of the cedar of Lebanon on the mountains of Cyprus.